Improving Recovery After Cervical Spine Surgery: Impact of an Acute Pain Service

Objective

To assess whether the Acute Pain Service (APS) team had an impact on the use of multimodal analgesia strategies, length of stay (LoS), and postoperative pain control for posterior cervical decompression and fusion (PCDF) patients.

Practice Points

1. PCDF is a major surgery on the back of the neck that helps stabilize the spine and relieve pressure on nerves, which can cause pain and weakness. While this procedure is necessary for many patients, it is known to be very painful.

2. In Newfoundland and Labrador (NL), the LoS in hospital after PCDF is longer compared to the national average and poorly controlled pain is a contributing factor to this increased LoS.

3. APS is a team consisting of an anesthesiologist and a specialized nurse who visit selected post-surgical patients to help manage their pain and address any side effects of pain treatment.

4. To address these issues, in January 2021, the APS team began following all PCDF patients, using a multimodal anesthesia and analgesia approach to reduce patients' LoS and improve postoperative pain control.

Methods (G. Tingley, A. Norman, & G. Warden)

1. Charts from patients presenting to the Health Sciences Centre in St. John's, NL for PCDF between 1 Jan 2019 and 31 Dec 2022 were evaluated. Patients who received APS post surgery (N=45) were compared to those who did not receive the service (N=57). There was no statistical difference in age, ASA Class, mFI-5 (modified Frailty Index) score, preoperative use of benzodiazepines, length of surgery or quantity of fusions.

2. LoS was determined from time of surgery until discharge from hospital.

3. Pain scores were determined by taking a median of all visual analogue scale ratings (0-10) made within each time interval.

4. Postoperative acetaminophen and NSAID (nonsteroidal anti-inflammatory drug) use was determined by reviewing patient medication records for any of these medications given during each time interval.

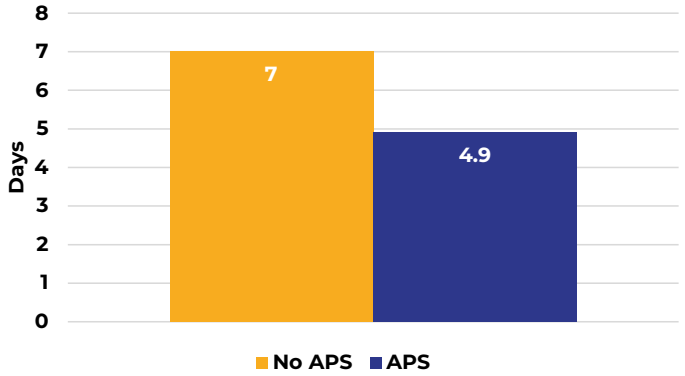

Figure 1. Average Length of Stay for Patients Who Received APS Compared to Those Who Did Not

- Patients receiving APS involvement in recovery after PCDF had lower LoS (4.9 days) compared to patients not receiving the intervention (7.0 days).

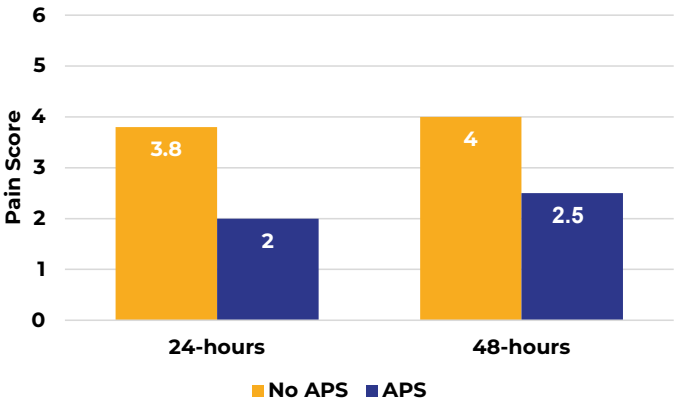

Figure 2. Postoperative Pain at Rest for Patients Who Received APS Compared to Those Who Did Not

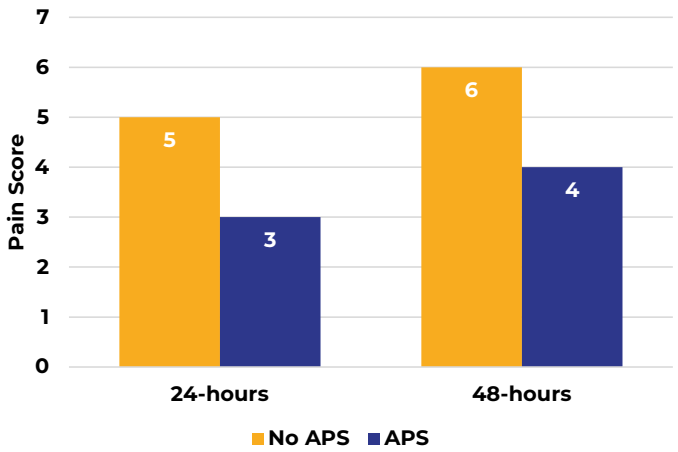

Figure 3. Postoperative Pain during Activity for Patients Who Received APS Compared to Those Who Did Not

- Postoperative pain at rest and during activity for patients receiving APS was reduced at 24 and 48 hours compared to those who did not receive it. (Figures 2 and 3).

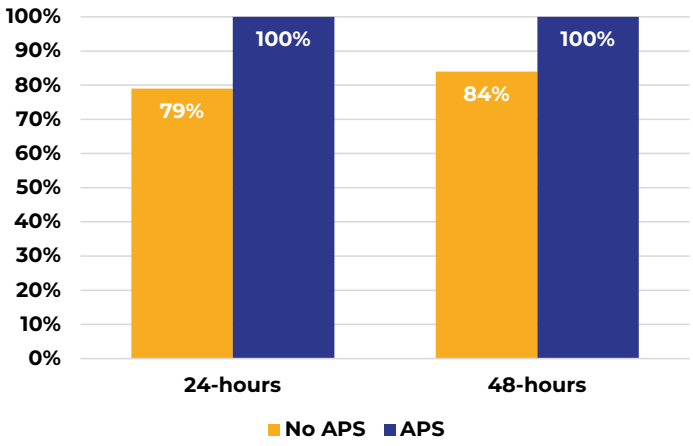

Figure 4. Postoperative Acetaminophen Usage for Patients Who Received APS Compared to Those Who Did Not

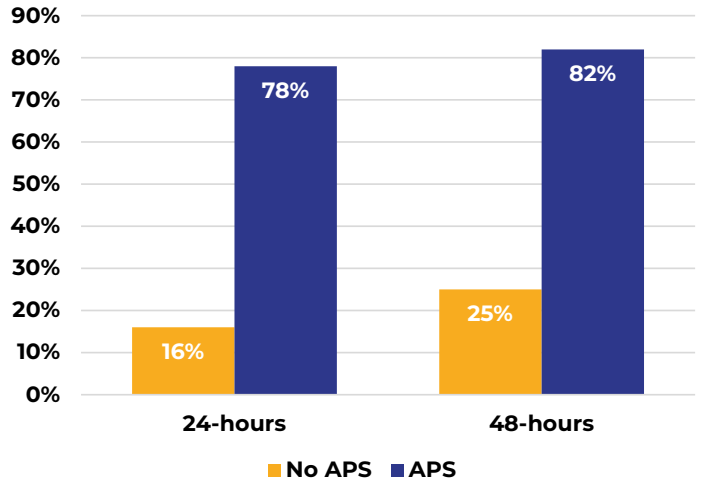

Figure 5. Postoperative NSAID Usage for Patients Who Received APS Compared to Those Who Did Not

- The percentage of patients receiving postoperative non-opioid analgesia increased with APS involvement in postoperative care (Figures 4 and 5).

Conclusions

1. APS involvement in PCDF recovery was associated with reduced LoS from 7.0 to 4.9 days.

2. Increased use of non-opioid analgesia (NSAIDs and acetaminophen) with APS involvement led to lower pain scores, likely contributing to shorter hospital stays.

3. Reducing the LoS may lead to cost avoidance, improved patient flow, and reduced surgical backlogs.

4. Future initiatives should identify other surgical populations where APS involvement can improve pain control, decrease LoS, and enhance recovery.